

**ELECTRONIC RECIPE MANAGEMENT****CROSS-REFERENCE TO RELATED APPLICATIONS**

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a1*      ~~The present application is related to the following~~  
copeniding applications, which are filed on even date  
herewith and incorporated herein by reference:

10      (1) U.S. Patent Application Serial No. \_\_\_\_/\_\_\_\_  
(Attorney Docket No. AUS000035US1); and

15      (2) U.S. Patent Application Serial No. \_\_\_\_/\_\_\_\_  
~~(Attorney Docket No. AUS000041US1)~~

**BACKGROUND OF THE INVENTION****1. Technical Field:**

20      The present invention relates in general to  
electronic recipes and, in particular, to a method,  
system, and program for managing electronic recipes.  
Still more particularly, the present invention relates to  
a method, system and program for distributing electronic  
25      recipes with encrypted ingredient lists that are only  
accessible by a food retailer.

**2. Description of the Related Art:**

30      Food recipes have been swapped, published and handed  
down by word of mouth, written recipe cards, published  
recipes and other media for years. Today, recipes are

also permeated through electronic media. Many web sites provide databases of recipes that can be searched by ingredients and other criteria. In addition, many electronic recipe web sites enable users to upload recipes that can then be accessed by other users.

Professional chefs and restaurants that develop award-winning dishes may attempt to profit from recipes for the dishes not only by preparing the dishes in a restaurant, but by publishing recipe books. However, distribution of recipes, once they are in print, is difficult to stop. Even more difficult, once a recipe is in electronic format, the recipe can be distributed to millions of users.

Some restaurants are able to secure portions of recipes and profit from the creation of award-winning dishes by distributing sauces or other pre-packaged portions of a dish so that the purchaser may only add a few additional ingredients and/or cooking preparation. In addition, pre-packaging ingredients for a particular dish has become popular in some supermarkets. For example, a consumer may purchase a package of chopped vegetables and a spice pack for preparing a soup. The pre-packaged ingredients also include instructions for preparation and options for meats and other ingredients that may be added.

While supermarkets and other food retailers may distribute their own recipes with pre-packaged ingredients, it would be advantageous to provide electronic recipes that may be distributed from a web

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### SUMMARY OF THE INVENTION

In view of the foregoing, it is therefore an object of the present invention to provide an improved method, system and program for distributing electronic recipes.

It is yet another object of the present invention to provide an improved method, system and program for distributing electronic recipes with encrypted ingredient lists that are only accessible by a food retailer.

In accordance with the present invention, ingredients for a particular electronic recipe accessible at a particular web site are encrypted, wherein the encrypted ingredients may be decrypted by a food retailer that intends to pre-package the encrypted ingredients. Instructions for preparing the electronic recipe and the encrypted ingredients are transmitted to a computer system associated with a particular user. The particular user may select the food retailer at which the encrypted ingredients are to be pre-packaged and transmit the encrypted ingredients to the food retailer. The selected food retailer may decrypt the encrypted ingredients utilizing a decryption key provided by the particular web site and pre-package the encrypted ingredients for the particular user.

All objects, features, and advantages of the present invention will become apparent in the following detailed written description.

**BRIEF DESCRIPTION OF THE DRAWINGS**

The novel features believed characteristic of the invention are set forth in the appended claims. The invention itself however, as well as a preferred mode of use, further objects and advantages thereof, will best be understood by reference to the following detailed description of an illustrative embodiment when read in conjunction with the accompanying drawings, wherein:

**Figure 1** depicts one embodiment of a data processing system with which the method, system and program of the present invention may advantageously be utilized;

**Figure 2** illustrates one embodiment of a block diagram of an electronic recipe distribution management system in accordance with the method, system, and program of the present invention;

**Figure 3** depicts a high level logic flowchart of a process and program for controlling distribution of recipes from a web site in accordance with the present invention;

**Figure 4** illustrates a high level logic flowchart of a process and program for managing electronic recipes at an electronic cookbook for a particular user in accordance with the present invention; and

**Figure 5** depicts a high level logic flowchart of a process and program for managing prepackaging of

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## DETAILED DESCRIPTION OF PREFERRED EMBODIMENT

5 The present invention may be executed in a variety of systems, including a variety of computing systems and electronic devices under a number of different operating systems. In a preferred embodiment of the present invention, the computer system incorporates communication features that provide for telephony, enhanced telephony, messaging and information services. Preferably, in order to enable at least one of these communication features, 10 the computer system is able to be connected to a network, such as the Internet by either a wired link or wireless link. In addition, the computer system may be a stand-alone system or part of a network such as a local-area network (LAN) or a wide-area network (WAN). Therefore, 15 in general, the present invention is preferably executed in a computer system that performs computing tasks such as manipulating data in storage that is accessible to the computer system. In addition, the computer system includes at least one output device and at least one 20 input device.

Referring now to the drawings and in particular to **Fig.1**, there is depicted a block diagram of one 25 embodiment of a computer system that may utilize the present invention. As depicted, data processing system **10** includes at least one processor **12**, which is coupled to system bus **11**. Each processor **12** is a general-purpose processor, such as IBM's PowerPC™ processor that, during 30 normal operation, processes data under the control of operating system and application software stored in

random access memory (RAM) **14** and Read Only Memory (ROM) **13**. The operating system preferably provides a graphical user interface (GUI) to the user. Application software contains instructions that when executed on processor **12** carry out the operations depicted in the flowcharts of **FIGS. 3, 4, 5** and others described herein.

Processors **12** are coupled via system bus **11** and Peripheral Component Interconnect (PCI) host bridge **16** to PCI local bus **20**. PCI host bridge **16** provides a low latency path through which processor **12** may directly access PCI devices mapped anywhere within bus memory and/or I/O address spaces. PCI host bridge **16** also provides a high bandwidth path for allowing PCI devices to directly access RAM **14**.

PCI local bus **20** interconnects a number of devices for communication under the control of PCI controller **30**. These devices include a Small Computer System Interface (SCSI) controller **18**, which provides an interface to SCSI hard disk **19**, and communications adapter(s) **15**, which interface data processing system **10** to at least one data communication network **17** comprising wired and/or wireless network communications. In addition, an audio adapter **23** is attached to PCI local bus **20** for controlling audio output through speaker **24**. A graphics adapter **21** is also attached to PCI local bus **20** for controlling visual output through display monitor **22**. In alternate embodiments of the present invention, additional peripheral components may be added. For example, in



alternate embodiments, a tactile display component may be provided.

5 PCI local bus **20** is further coupled to an Industry Standard Architecture (ISA) bus **25** by an expansion bus bridge **29**. As shown, ISA bus **25** has an attached I/O (Input/Output) controller **34** that interfaces data processing system **10** to peripheral input devices such as a keyboard and mouse (not illustrated) and supports  
10 external communication via parallel, serial and universal serial bus (USB) ports **26**, **27**, and **28**, respectively.

With reference now to **Figure 2**, there is illustrated one embodiment of a block diagram of an electronic recipe distribution management system in accordance with the method, system, and program of the present invention. As depicted, recipe web site server system **40**, food retailer server system **50**, personal computer system **70** and account server system **80** communicate via a communication medium with a network **60**, such as the Internet. The  
5 communication medium may include wired or wireless communications or other communications media that enables bi-directional transmission of data.  
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25 Data exchange across the communication medium is advantageously performed in at least one of multiple available data transmission protocols and is preferably supported by a common data structure format, such as the extensible mark-up language (XML) data structure format.  
30 Data transmission protocols may include, but are not limited to, Transmission Control Protocol (TCP), Internet

Protocol (IP), Hypertext Transfer Protocol (HTTP), and Bluetooth. In addition, data may be transmitted in a secure manner via encryption or by technologies, such as secure socket layer (SSL) or virtual private networks (VPN).

An example of an XML data file that might be transmitted from recipe web site server system 40 to personal computer system 70, as depicted below, preferably contains data that is distinguished by attributes on elements and may be wrapped within a larger element. For example, the data attributed to element "<TimeStamp> </TimeStamp>" designates the time that the data was attributed to the XML data file.

```
<RECIPE TimeStamp="888965153" ServerID="jazzfood34"
Instructions="cobblerinstr.doc">
Ingredients="jazzfood34ingred.doc">
```

A second example of the same data in an alternate XML data format that includes elements is illustrated below.

```
<TimeStamp>888965153</TimeStamp>
<ServerID>jazzfood34</ServerID>
<Instructions>cobblerinstr.doc</Instructions>
<Ingredients>jazzfood34ingred.doc</Ingredients>
```

In the example, an electronic recipe for a cobbler is transmitted from a recipe web site server system with a universal identifier of "jazzfood34". The electronic recipe includes a first part of instructions included in "cobblerinstr.doc" and a second part of ingredients that

are encrypted in "jazzfood34ingred.doc".

In addition, in the example of the XML data format as the common transmittable data format, a data validation file such as a document type definition (DTD) or schema is preferably utilized to validate XML data files. In addition, a schema preferably translates multiple XML data files. Moreover, a style sheet such as an extensible stylesheet language (XSL) file is preferably utilized to provide a style specification for the XML data at the receiving system. In particular, DTDs, schemas, and XSL files may be, for example, transmitted with an XML data file to a receiving system or downloaded at the receiving system from an alternate source. In the present example, the DTD or schema would verify that all the data required for an electronic food recipe is included in the XML data file.

Account server system **80** serves as a universally accessible database that advantageously includes an identifier directory **82** of server system addresses each associated with one of multiple universal identifiers. In order to access any of the server systems and other data processing systems accessible via network **60**, an alphanumeric universal identifier, such as a web page address, associated with a person, item, group or business, is preferably looked up in identifier directory **82** and utilized to determine the server system address associated with the universal identifier. In the present example, each of recipe web site server system **40**, retailer server system **50** and personal computer system **70**

may be accessed according to universal identifiers associated with recipe web site server system **40**, retailer server system **50**, and personal computer system **70**.

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Account server system **80** may be housed within a single server system or multiple distributed server systems and identifier directory **82** may include server addresses for multiple types of systems including, but not limited to, web application servers, host storage systems, mainframes, and home computer systems.

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Personal computer system **70** includes an electronic cookbook **72**, an electronic market controller **74**, and an electronic personal chef assistant within a data storage medium **71**. While in the present embodiment, data storage medium **71** is depicted as internally accessible to personal computer system **70**, in alternate embodiments, data storage medium **71** may be externally or remotely accessible to personal computer system **70**.

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~~Electronic cookbook **72** advantageously includes menu plans for a particular household. U.S. Patent Application Serial No. \_\_\_\_/\_\_\_\_ (Attorney Docket No. AUS000035US1), herein incorporated by reference, includes a description of the method, system and program for managing menu plans by electronic cookbook **72**. Menu plans are advantageously made according to multiple factors including dietary and health related data for multiple occupants and visitors to a household, current food and kitchen supply inventory and time constraints~~

according to the schedule of the primary chef of the household.

In the present invention, recipe web sites, such as recipe web site server system 40, may be searched according to the multiple factors utilized by electronic cookbook 72 to select recipes for meal plans that satisfy the multiple factors. In addition, in the present invention, a recipe that includes encrypted ingredients may be selected by electronic cookbook 72 and requested from recipe web site server system 40. Recipes that include encrypted ingredients that are accessed by personal computer system 70 are advantageously stored in electronic cookbook 72 according to a particular schedule for preparing the meal plan that includes the recipe.

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Electronic market controller 74 advantageously includes universal identifiers for multiple on-line and store-front food retailers that are preferred by the household. U.S. Patent Application Serial No. \_\_\_\_/\_\_\_\_ (Attorney Docket No. AUS000041US1), herein incorporated by reference, includes a description of the method, system and program for managing searches for food retailers that are enabled to provide requested food items and for placing orders for food items with the food retailers according to menu plans made in electronic cookbook 72.

In the present invention, in searching for food retailers that are enabled to provide requested food items, electronic market controller 74 searches for food

retailers that are enabled to provide pre-packaged ingredients from encrypted recipes. In addition market controller **74** controls the transmittal of the encrypted ingredients to a particular food retailer such that the pre-packaged ingredients will be shipped to the household or available for pick-up according to the schedule for the meal plan included in electronic cookbook **72**.

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Instructions for preparing a food dish according to the electronic recipe are advantageously convertible into a control signal for a cooking device by an electronic personal chef assistant **76**, such as the electronic personal chef assistant described in U.S. Patent Application Serial No. \_\_\_\_/\_\_\_\_ (Attorney Docket No. AUS000044US1), herein incorporated by reference. In the present invention, the instructions received from the web site for the particular electronic recipe are advantageously specified according to the type of cooking device and other cooking preferences by the occupants of a household who will partake of the food dish. The specified instructions are then transmitted to the cooking device as a control signal.

Recipe web site server system **40** advantageously includes an electronic recipes database **42**, recipe specifier application **44**, and a registration database **46** within a data storage medium **41**. While in the present embodiment data storage medium **41** is depicted as internally accessible to recipe web site server system **40**, in alternate embodiments of the present invention data storage medium **41** may be externally or remotely

accessible to recipe web site server system **40**.

Electronic recipes database **42** advantageously includes multiple electronic recipes that are searchable according to ingredients and other criteria. In particular, in the present invention, electronic recipes may include particular ingredients that are shielded from the user, however these ingredients may be searched for according to search criteria.

Recipe specifier application **44** advantageously receives multiple factors such as dietary and health related data for multiple occupants and visitors to a household, current food and kitchen supply inventory and time constraints according to the schedule of the primary chef of the household in order to search electronic recipes database **42** for acceptable recipes for the household.

In addition, in response to receiving a selection for a particular recipe from a particular user, recipe specifier application **44** preferably utilizes the multiple factors to adjust the particular recipe. For example, the particular recipe may be adjusted by recipe specifier application **44** according to the number of servings and serving size preferences of the occupants and visitors to a household that will consume the meal prepared from the particular recipe. In another example, a particular ingredient may be substituted by recipe specifier application **44** in response to a food allergy of a particular user for an ingredient that will be encrypted

from user view.

After adjusting the particular recipe according to the multiple factors, recipe specifier application **44** encrypts a particular selection of the ingredients according to the user requesting the recipe. Multiple encryption techniques may be utilized. In the present embodiment, an encryption technique, such as double-blind encryption is advantageous. In encrypting the particular selection of the ingredients utilizing double-blind encryption, a decryption key is created that may be utilized to decrypt the encrypted selection of ingredients. In the present invention, the decryption key is advantageously accessible to one of multiple allowable food retailers for decrypting the encrypted selection of ingredients and pre-packing the ingredients for a particular user.

In addition, in encrypting the particular selection of ingredients, a specified number of times for which the encrypted selection may be transmitted for pre-packaging may be secured. By one method of specifying the number of times for which the encrypted selection may be transmitted for pre-packaging, the decryption key may include an expiration date or may only be usable for decryption a specified number of times.

Recipe specifier application **44** transmits the instructions and non-encrypted ingredients with the encrypted ingredients to the requesting user system, such as personal computer system **70**. In addition, recipe



specifier application **44** stores the decryption key for the encrypted ingredients and may broadcast the decryption key to multiple food retailer server systems that are included in a listing of preferred food  
5      retailers for the particular user.

Registration database **46** advantageously includes registration data for multiple users and for multiple food retailers. Recipe web site server system **40** may  
10      require that a user provide registration and payment data in order to access a recipe with encrypted ingredients. Upon receiving a request for a particular recipe, if a user is not registered, an electronic registration form may be provided to the user. In response to receiving a  
15      filled in electronic registration form for the user, access to the particular recipe with encrypted ingredients may be provided. In addition, in requiring registration, recipe web site server system **40** may  
20      transmit special offers and updates on new electronic recipes according to universal identifiers of users registered in registration database **46**.

In addition, recipe web site server system **40** may search registration database **46** for a registered food  
25      retailer prior to releasing decryption keys to the food retailer. Advantageously, recipe web site server system **40** may transmit an electronic registration form to the food retailer that requires the food retailer to agree to the terms provided by recipe web site server system **40**  
30      for pre-packaging ingredients. For example, terms may include that the food retailer will sell the pre-packaged

ingredients at a price named by recipe web site server system 40. In another example, terms may include that the food retailer will only utilize specific brands of ingredients designated by recipe web site server system 40 in pre-packaging ingredients.

Retailer server system 50 includes decryption keys database 52, decryption application 54, and ingredients reservation database 56 within a data storage medium 51. While in the present embodiment data storage medium 51 is depicted as internally accessible to reservation server system 50, in alternate embodiments of the present invention, data storage medium 51 may be externally or remotely accessible to reservation server system 50.

Decryption keys database 52 includes decryption keys received from multiple recipe web sites. In response to receiving a search request from electronic market controller 74 of personal computer system 70 for pre-packaging encrypted recipe ingredients from a recipe retrieved from a particular web site, decryption application 54 determines whether or not a decryption key is included in decryption key database 52 for the encrypted recipe ingredients. If a decryption key is not included, decryption application 54 also controls transmitting a request to the web site for a decryption key.

Decryption application 54 also decrypts encrypted ingredients when received from a particular user. In particular, the particular user from whom the encrypted

ingredients are received must match the particular user for whom the ingredients were encrypted.

Decrypted ingredients are advantageously added to an ingredients reservation database **56** according to the particular user and output to an output interface, such as output interface **58**, that is accessible to staff or machinery preparing the pre-packaged ingredients. Ingredients reservation database **56** advantageously includes a schedule for pre-packaging ingredients such that a particular time by which the ingredients will be pre-packaged may be transmitted to personal computer system **70**.

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~~In addition, ingredients reservation database **56** may update a store server system, such as the store server system described in U.S. Patent Application Serial No. \_\_\_\_/\_\_\_\_ (Attorney Docket No. AUS000054US1, herein incorporated by reference, that determines whether or not additional inventory should be ordered according to absent items from intended inventories of multiple households. In the present invention, the store server system might determine whether or not additional inventory should be ordered according to requests for pre-packaging ingredients.~~

Referring now to **Figure 3**, there is depicted a high level logic flowchart of a process and program for controlling distribution of recipes from a web site in accordance with the present invention. As illustrated, the process starts at block **100** and thereafter proceeds

to block **102**. Block **102** depicts a determination as to whether or not a request for a recipe is received from a particular user with particular cooking preferences. If a request for a recipe is not received, then the process passes to block **114**. If a request for a recipe is received, then the process passes to block **104**.

Block **104** depicts a determination as to whether or not the particular user is registered. If the particular user is registered, then the process passes to block **110**. If the particular user is not registered, then the process passes to block **106**.

Block **106** illustrates transmitting an electronic form to the requesting user. Next, block **108** depicts a determination as to whether or not a filled in registration form is received. If a filled in registration form is not received, then the process passes to block **114**. If a filled in registration form is received, then the process passes to block **110**.

Block **110** depicts adjusting the recipe according to the cooking preferences for the user. For example, in adjusting the recipe according to the cooking preferences for the user, ingredients and ingredient amounts may be adjusted in order to provide a particular number of servings and compensate for special dietary needs and food allergies. Next, block **111** illustrates encrypting the ingredients list for the particular user with a specified number of uses. The number of uses may be specified according to a number of uses paid for by the

user or by other criteria. Thereafter, block **112** depicts transmitting the recipe instructions and encrypted ingredients list to the requesting user; and the process passes to block **114**.

Block **114** illustrates a determination as to whether or not a request for a decryption key is received from a food retailer. If a request for a decryption key is not received, then the process ends. If a request for a decryption key is received, then the process passes to block **116**. Block **116** depicts a determination as to whether or not the requesting food retailer is an authorized food retailer. If the requesting food retailer is not an authorized food retailer, then the process ends. If the requesting food retailer is an authorized food retailer, then the process passes to block **118**. Block **118** illustrates transmitting a decryption key to the requesting food retailer; and the process ends. In addition, in transmitting a decryption key, the recipe web site may require that the food retailer pay for use of the decryption key and may also require that the food retailer charge a particular amount for the prepackaged ingredients, such as a per pound amount.

With reference now to **Figure 4**, there is illustrated a high level logic flowchart of a process and program for managing electronic recipes at an electronic cookbook for a particular user in accordance with the present invention. As depicted, the process starts at block **130** and thereafter proceeds to block **132**. Block **132**

illustrates transmitting a request for a recipe to a particular web site with food preferences for the particular user. Next, block **134** depicts a determination as to whether or not a registration form is received. If a registration form is not received, then the process passes to block **138**. If a registration form is received, then the process passes to block **136**.

Block **136** illustrates transmitting a filled in registration form to the web site; and the process passes to block **138**. The registration form may be automatically filled in with personal data that is stored in the same data format as the electronic registration form.

Block **138** depicts a determination as to whether or not an electronic recipe is received. If an electronic recipe is not received, then the process passes to block **148**. If an electronic recipe is received, then the process passes to block **140**. Block **140** illustrates storing the instructions and encrypted ingredients. Next, block **141** depicts adding the recipe to an electronic meal schedule. Thereafter, block **142** depicts searching for a food retailer enabled to pre-package the ingredients from the encrypted ingredients list; and the process passes to block **144**. Searching may be performed from a list of food retailers stored by the user, or via a search engine that finds on-line and store front food retailers within a particular area.

Block **144** illustrates a determination as to whether or not a food retailer that is enabled to pre-package the

ingredients is located. If a food retailer is not located, then the process ends. If a food retailer is located, then the process passes to block **146**. Block **146** depicts transmitting the encrypted ingredients list to the food retailer server; and the process passes to block **148**. In particular, a date by which the pre-packaged ingredients are needed may also be transmitted.

Block **148** depicts a determination as to whether or not the user is ready to prepare the dish from the electronic recipe. If the user is not ready to prepare the dish, then the process ends. If the user is ready to prepare the dish, then the process passes to block **150**. Block **150** illustrates adjusting the instructions according to the cooking device and any additional food cooking preferences. Next, block **152** depicts transmitting a control signal to the cooking device; and the process ends.

Referring now to **Figure 5**, there is depicted a high level logic flowchart of a process and program for managing pre-packaging of ingredients at a food retailer in accordance with the present invention. As illustrated, the process starts at block **160** and thereafter proceeds to block **162**. Block **162** depicts a determination as to whether or not a decryption key is received from a web site. If a decryption key is not received from a web site, the process passes to block **166**. If a decryption key is received from a web site, then the process passes to block **164**. Block **164** illustrates storing the decryption keys according to the

web sites from which the keys are received; and the process passes to block **166**.

5       Block **166** depicts a determination as to whether or not a search request for food retailers that can pre-package ingredients for an electronic recipe obtained from a particular web site is received from a particular user. If a search request is not received, then the process passes to block **178**. If a search request is received, then the process passes to block **168**.

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Block **168** illustrates comparing the particular web site with the web sites from which decryption keys have been received. Next, block **170** depicts a determination as to whether or not the food retailer is enabled to decrypt recipes from the particular web site. If the food retailer is enabled to decrypt recipes from the particular web site, then the process passes to block **176**. If the food retailer is not enabled to decrypt recipes from the particular web site, then the process passes to block **172**.

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Block **172** depicts transmitting a request to a particular web site for a decryption key for the particular recipe. Next, block **174** illustrates a determination as to whether or not a decryption key is received from the web site. If a decryption key is not received from the web site, then the process ends. If a decryption key is received from the web site, then the process passes to block **176**. Block **176** depicts transmitting an indicator of availability for pre-

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packaging ingredients to requesting system; and the process passes to block **178**.

Block **178** illustrates a determination as to whether or not an encrypted ingredients list is received. If an encrypted ingredients list is not received, then the process ends. If an encrypted ingredients list is received, then the process passes to block **180**. Block **180** depicts a determination as to whether or not the encrypted ingredients list is expired. If the encrypted ingredients list is expired, then the process ends. If the encrypted ingredients list is not expired, then the process passes to block **182**.

Block **182** depicts decrypting the ingredients list. Next, block **184** illustrates transmitting the decrypted ingredients list to an ingredients reservation list in association with the requesting customer; and the process ends.

It is important to note that, although the present invention has been described in the context of a fully functional computer system, those skilled in the art will appreciate that the mechanisms of the present invention are capable of being distributed as a program product in a variety of forms, and that the present invention applies equally regardless of the particular type of signal-bearing media utilized to actually carry out the distribution. Examples of signal-bearing media include, but are not limited to, recordable-type media such as floppy disks or CD-ROMs and transmission-type media such

as analogue or digital communications links.

While the invention has been particularly shown and described with reference to a preferred embodiment, it will be understood by those skilled in the art that various changes in form and detail may be made therein without departing from the spirit and scope of the invention.